

5,5 B.) 15. Digital signal conversion apparatus for converting a first digital image signal to a second digital image signal having a high resolution component, comprising:

a memory for storing class data for respective classes at addresses corresponding to said respective classes, said class data being associated with at least a training digital image signal having said high resolution component;

means for receiving said first digital image signal including pixel data representing pixel values;

Q means for clustering ~~in accordance with~~ a plurality of pixel data of said first digital image signal adjacent to a pixel data of said second digital image signal to produce a class;

means for retrieving said class data from one of said addresses of said memory corresponding to said class of said first digital image signal; and

means for generating all of pixel data representing pixel values of said second digital image signal based upon at least said retrieved class data.

16. The digital signal conversion apparatus as claimed in claim 15, wherein said class data includes a plurality of coefficient data; and wherein said means for generating said pixel data representing pixel values of said second digital image signal generates each of said pixel data representing pixel values of said second digital image signal in accordance with the plurality of coefficient data and a plurality of pixel data of said first digital image signal.

17. The digital signal conversion apparatus as claimed in claim 15, wherein the first digital image signal is an orthogonally converted digital image signal and said means for receiving comprises means for decoding said orthogonally converted digital image signal to produce a decoded digital image signal.

18. The digital signal data conversion apparatus as claimed in claim 15, wherein said class data stored in said memory corresponds to said pixel data representing pixel values of said second digital image signal; and wherein said means for generating is operable to generate said pixel data representing pixel values of said second digital image signal by providing said retrieved class data as said pixel data representing pixel values of said second digital video signal.

5.5 B2) 19. A digital signal data conversion method for converting a first digital image signal to a second digital image signal having a high resolution component, comprising the steps of:

storing class data for respective classes at addresses in a memory corresponding to said respective classes, said class data being associated with at least a training digital image signal having said high resolution component;

receiving said first digital image signal including pixel data representing pixel values;

a clustering in accordance with a plurality of pixel data of said first digital image signal adjacent to a pixel data of said second digital image signal to produce a class;

retrieving said class data from one of said addresses of said
memory corresponding to said class of said first digital video
signal; and
generating all of pixel data representing pixel values of said
second digital image signal based upon at least said retrieved
class data.

20. The digital signal conversion method as claimed in claim 19,
wherein said class data includes a plurality of coefficient data;
and wherein the step of generating said pixel data representing
pixel values of said second digital video signal generates each of
said pixel data representing pixel values of said second digital
image signal in accordance with the plurality of coefficient data
and a plurality of pixel data of said first digital image data.

21. The digital signal conversion method as claimed in claim 19,
wherein the first digital image signal is an orthogonally converted
digital image signal and the step of receiving further comprises
decoding said orthogonally converted digital image signal to
produce a decoded digital image signal.

22. The digital signal conversion method as claimed in claim 19,
wherein said class data stored in said memory corresponds to said
pixel data representing pixel values of said second digital image
signal and wherein said step of generating said pixel data
representing pixel values of said second digital image signal is
carried out by providing said retrieved class data as said pixel
data representing pixel values of said second digital image signal.

23. Digital signal conversion apparatus for converting a digital
video signal admitting of a first standard into a digital video

signal admitting of a second standard, a first resolution of said digital video signal admitting of said first standard being lower than a second resolution of said digital video signal admitting of said second standard, comprising:

a memory for storing class data for respective classes at addresses corresponding to said respective classes, said class data being associated with at least a training digital video signal admitting of said second standard having said second resolution;

means for receiving an input digital video signal including pixel data and admitting of said first standard;

means for clustering ~~in accordance with~~ a plurality of pixel data of said input digital video signal adjacent to a pixel data of a second digital video signal to produce a class;

means for retrieving said class data from one of said addresses of said memory corresponding to said class of said input digital video signal admitting of said first standard; and

means for generating all of pixel data representing pixel values of said digital video signal admitting of said second standard based upon at least said class data which has been retrieved.

24. The digital signal conversion apparatus as claimed in claim 23, wherein said class data includes a plurality of coefficient data; and wherein said means for generating said pixel data representing pixel values of said digital video signal admitting of said second standard is operable to generate each said pixel data representing pixel values of said digital video signal admitting of said second standard in accordance with the plurality of

coefficient data and a plurality of pixel data of said digital video signal admitting of said first standard.

25. The digital signal conversion apparatus as claimed in claim 23, wherein said class data stored in said memory corresponds to said pixel data representing pixel values of said digital video signal admitting of said second standard and wherein said means for generating is operable to generate said pixel data representing pixel values of said digital video signal admitting of said second standard by providing said retrieved class data as said pixel data representing pixel values of said digital video signal admitting of said second standard.

26. The digital signal conversion apparatus as claimed in claim 23, further comprising means for generating said class data stored in said memory.

55B4) 27. Digital signal conversion apparatus for converting a standard definition digital video signal to a high definition digital video signal, comprising:

a memory for storing class data for respective classes at addresses corresponding to said respective classes, said class data being associated with at least a training high definition video signal;

means for receiving a standard definition digital video signal having pixel data representing pixel values;

a means for clustering in accordance with a plurality of pixel data of said standard definition digital video signal adjacent to a pixel data of a second digital video signal to produce a class;

means for retrieving said class data from one of said addresses of
said memory corresponding to said class of said standard
definition digital video signal; and
means for generating all of pixel data representing pixel values of
a high definition digital video signal based upon at least
said retrieved class data.

28. The digital signal conversion apparatus as claimed in claim
27, wherein said class data includes a plurality of coefficient
data; and wherein said means for generating the pixel data
representing pixel values of said high definition digital video
signal generates each of said pixel data representing values of
said high definition digital video signal in accordance with the
plurality of coefficient data and a plurality of pixel data of said
standard definition digital video signal.

29. The digital signal conversion apparatus as claimed in claim
28, wherein said class data stored in said memory corresponds to
said pixel data representing pixel values of said high definition
digital video signal; and said means for generating is operable to
generate said pixel data representing pixel values of said high
definition digital video signal by providing said retrieved class
data as said pixel data representing pixel values of said high
definition digital video signal.

30. A digital signal conversion method, comprising the steps of:
storing class data for respective classes at addresses in a memory
corresponding to said respective classes, said class data
being associated with at least a training high definition
digital video signal;

receiving a standard definition digital video signal having pixel data representing pixel values;
clustering in accordance with a plurality of pixel data of said standard definition digital video signal adjacent to a pixel data of a second digital video signal to produce a class;
retrieving said stored class data from one of said addresses corresponding to said class of said standard definition digital video signal; and
generating all of pixel data representing pixel values of a second output digital video signal based upon at least said retrieved class data.

31. The digital signal conversion method as claimed in claim 30, wherein said class data includes a plurality of coefficient data; and wherein said step for generating the pixel data representing pixel values of said second output digital video signal generates each of said pixel data representing values of a high definition video signal in accordance with the plurality of coefficient data and a plurality of pixel data of said standard definition digital video signal.

32. The digital signal conversion method as claimed in claim 30, wherein said stored class data corresponds to said pixel data representing pixel values of said second output digital video signal; and said step for generating is operable to generate said pixel data representing pixel values of said second output digital video signal by providing said retrieved class data as pixel data representing pixel values of a high definition digital video signal.

33. Digital data conversion apparatus for converting a first digital image signal to a second digital image signal having a high resolution component, comprising:

a memory for storing class data for respective classes at addresses corresponding to said respective classes, said class data being associated with at least a training digital image data having said high resolution component;

means for receiving said first digital image signal including pixel data representing pixel values;

means for clustering ~~in accordance with~~ a plurality of pixel data of said first digital image signal adjacent to a plurality of pixel data of said second digital image signal to produce a class, said class ^{being used} ~~using~~ to retrieve a class data to generate a plurality of pixel data representing pixel values of a second digital image signal;

means for retrieving said class data from addresses of said memory corresponding to said class of said first digital image signal; and

means for generating a plurality of pixel data representing pixel values of said second digital image signal based upon said retrieved class data.

34. The digital data conversion apparatus as claimed in claim 33, wherein said class data includes a plurality of coefficient data; and wherein said means for generating the plurality of pixel data representing pixel values of said second digital image signal generates each of said pixel data representing values of said second digital image signal in accordance with the plurality of

coefficient data and a plurality of pixel data representing pixel values of said first digital image data.

35. The digital data conversion apparatus as claimed in claim 33, wherein said class data stored in said memory corresponds to said pixel data representing pixel values of said second digital image signal; and said means for generating is operable to generate said pixel data representing pixel values of said second digital image signal by providing said retrieved class data as said pixel data representing pixel values of said second digital image signal.

36. Digital data conversion method for converting a first digital image signal to a second digital image signal having a high resolution component, comprising the steps of:

storing class data for respective classes at addresses in a memory corresponding to said respective classes, said class data being associated with at least a training digital image data having said high resolution component;

receiving said first digital image signal including pixel data representing pixel values;

clustering in accordance with a plurality of pixel data of said first digital image signal adjacent to a plurality of pixel data of said second digital image signal to produce a class, said class using to retrieve a class data to generate a plurality of pixel data representing pixel values of a second digital image signal;

retrieving said class data from addresses of said memory corresponding to said class of said first digital image signal; and

generating a plurality of pixel data representing pixel values of said second digital image signal based upon said retrieved class data.

37. The digital data conversion method as claimed in claim 36, wherein said class data includes a plurality of coefficient data; and wherein said step for generating the plurality of pixel data representing pixel values of said second digital image signal generates each of said pixel data representing values of said second digital image signal in accordance with the plurality of coefficient data and a plurality of pixel data representing pixel values of said first digital image data.

38. The digital data conversion method as claimed in claim 36, wherein said class data stored in said memory corresponds to said pixel data representing pixel values of said second digital image signal; and said step for generating is operable to generate said pixel data representing pixel values of said second digital image signal by providing said retrieved class data as said pixel data representing pixel values of said second digital image signal.